AMENDMENTS

Amendments to the claims:

Please cancel claims 21-55 without prejudice or disclaimer, and please amend claims 1 and 18 as set forth in the complete listing of the claims that follows. This complete listing of the claims replaces previous claim listings.

1 (currently amended). A method for identifying a subject at risk of low bone mineral density (BMD), which comprises detecting the presence or absence of one or more polymorphic variations associated with low BMD in a nucleic acid sample from a subject, wherein the one or more polymorphic variations are detected in a nucleotide sequence in SEQ ID NOs:1-5, a substantially identical sequence thereof or a fragment of the foregoing; whereby the presence of the polymorphic variation is indicative of the subject being at risk of low BMD.

2 (original). The method of claim 1, which further comprises obtaining the nucleic acid sample from the subject.

3 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs7500979, rs2217332, rs8044804, rs2270835, rs2133783, rs247609, rs952440, rs881598, rs2291955, rs2518054, rs866038, rs1436425, rs173537, rs247611, rs166017, rs173538, rs193694, rs7205692, rs8048746, rs247618, rs183130, rs6499863, rs4783961, rs3816117, rs711752, rs708272, rs1864163, rs4369653, rs1864165, rs891141, rs891143, rs7205804, rs5885, rs1532625, rs1532624, rs289712, rs7499892, rs5883, rs289714, rs158480, rs289717, rs4344729, rs289718, rs289719, rs2033254, rs4784744, rs291044, rs8053613, rs5881, rs5880, rs7198026, rs5882, rs8045701, rs289741, rs1801706, rs289742, rs289743, rs289746, rs172337, rs289747, rs1566439, rs7205459, rs289749, rs289751, rs8059220, rs8058353, rs289735, rs289737, rs291042, rs1875236, rs821466, rs821465, rs4275846, rs289707, rs821463,

rs289706, rs1167741, rs2052880, rs1167742, rs1183256, rs1651665, rs1651666, rs4784751, rs1651667, rs8052091, rs1684574, rs1684575, rs1672865, rs821470, rs1549669, rs291040 and rs289754.

4 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs166017, rs193694, rs7205804, rs1801706, rs7205459 and rs821465.

5 (original). The method of claim 1, wherein the one or more polymorphic variations are detected in a region spanning positions 14,328 to 68,805 in SEQ ID NO: 1.

6 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs523051, rs693620, rs2588349, rs2588350, rs619381, rs3759252, rs3759251, rs2418107, rs7303054, rs1838345, rs620878, rs2537817, rs1548803, rs667123, rs1838346, rs2159903, rs3944035, rs3741845, rs2110096, rs759055, rs589377, rs7960194, rs7978242, rs601051, rs4262797, rs2215714, rs1373434, rs2215715, rs612456, rs612808, rs689118, rs597468, rs592864, rs640372, rs7966559, rs654834, rs4763216, rs668521, rs669503, rs3906864, rs3906863, rs7957888, rs9300230, rs7306214, rs763839, rs2418105, rs666841, rs3851578, rs7138797, rs7295252, rs2418106, rs7299578, rs621112, rs3863320, rs1373432, rs1047699, rs1063193, rs2232959, rs2227296, rs1548804, rs2232958, rs2232957, rs2232956, rs1972571, rs3759250, rs3759249, rs1541525, rs2098248, rs2900550, rs7302130, rs4763583, rs4360778, rs1607695, rs1607694, rs2192139, rs7978300, rs7397871, rs4763217, rs2159900, rs10772370, rs7398682, rs2900551, rs2900552, rs2418214, rs2418215, rs965243, rs1117548, rs1520225, rs1520226, rs1520227, rs971919, rs2159901, rs2159902, rs2110099, rs7314847, rs7296003, rs4281556, rs4763219, rs3851579, rs3851580, rs1049119, rs2298866, rs2298865, rs2298864, rs2298863,

rs3180393, rs2070837, rs7956204, rs2418216, rs3741844, rs4262798, rs2418217, rs2418218, rs7137492, rs2110100, rs1013312, rs4579993, rs1013313, rs7397106, rs2215716, rs2192140, rs4763589, rs1468697, rs2070837, rs3180393 and rs2298865.

7 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs2588350, rs619381, rs620878, rs759055, rs4262797, rs612808, rs3906863, rs7957888, rs763839, rs2418105, rs666841, rs3851578, rs7299578, rs621112, rs1047699, rs1548804, rs2232956, rs1520227 and rs2215716.

8 (original). The method of claim 1, wherein the one or more polymorphic variations are detected in a region spanning positions 2,424 to 93,715 in SEQ ID NO: 2.

9 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs1433661, rs1485009, rs7681947, rs1816432, rs1485018, rs1485017, rs7438397, rs6834311, rs1368717, rs1017391, rs2870701, rs7679839, rs1385404, rs1368716, rs4693316, rs1905707, rs1905708, rs1905709, rs3912442, rs2082553, rs6831638, rs5860329, rs2870702, rs2870703, rs1948016, rs6835836, rs1994253, rs1905710, rs1485019, rs978191, rs1385405, rs7694361, rs1905711, rs1905734, rs1485012, rs1485013, rs4692981, rs7670552, rs7670932, rs7688091, rs7440540, rs2171000, rs2870704, rs7655758, rs7661436, rs7662289, rs7667044, rs7691929, rs5860330, rs901013, rs901012, rs901011, rs1948018, rs2870705, rs1948017, rs1905733, rs1385408, rs1385409, rs1385410, rs1485026, rs1485027, rs2904483, rs1385406, rs1905732, rs2046418, rs2200377, rs1905731, rs1905730, rs975713, rs6820985, rs7670441, rs6810794, rs7676623, rs1154861, rs1032125, rs1485022, rs1485024, rs3913651, rs4693319, rs1872383, rs2200376, rs7668090, rs7692930, rs967096, rs6822249, rs6532405, rs1017897, rs7672674, rs7694568, rs2904484,

rs7340830, rs1485033, rs2870706, rs1905729, rs4693320, rs6848749, rs6532406, rs6532407, rs1905728, rs6819866, rs1905727, rs7674069, rs1905724, rs1905723, rs1485020 and rs6814101.

10 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs1433661, rs7679839, rs1368716, rs1905707, rs1905708, rs1994253, rs1485019, rs1905734, rs1485012, rs7670552, rs7691929, rs1948018, rs1948017, rs1485024, rs7694568, rs4693320, rs6848749, rs6532406, rs6532407 and rs6819866.

11 (original). The method of claim 1, wherein the one or more polymorphic variations are detected in a region spanning positions 206 to 90,969 in SEQ ID NO: 3.

12 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs6886495, rs6450498, rs1472456, rs4700315, rs4700316, rs7714708, rs7710479, rs2968013, rs2968014, rs2968015, rs1391648, rs2055297, rs2055296, rs3989138, rs4700317, rs2036220, rs7727206, rs7723432, rs1546221, rs4479801, rs4395595, rs4395596, rs4699932, rs2936201, rs7356672, rs2936200, rs1909296, rs7703131, rs7445308, rs3087748, rs4321723, rs2968016, rs5868151, rs1874858, rs1874857, rs7712922, rs4631140, rs4469166, rs1078369, rs1078368, rs2968006, rs2968005, rs2936190, rs2409613, rs4415048, rs2968004, rs2968003, rs2968002, rs2936191, rs1498610, rs6874662, rs3060393, rs7729722, rs7733884, rs7714489, rs7735570, rs2936193, rs2291851, rs2291852, rs1498602, rs1995166, rs1498603, rs1498604, rs1498605, rs1948651, rs4699934, rs4700319, rs2279737, rs7720361, rs7706419, rs1006431, rs1353747, rs1498606, rs1353748, rs1553113, rs2968012, rs2968011, rs1498608, rs2936189, rs1498609, rs2968019, rs6891238, rs2968010, rs2968009, rs2936203, rs1498601, rs1498600, rs1498599, rs2936202,

rs7730070, rs6450501, rs6450502, rs6889456, rs6894618, rs7706044, rs7707541, rs7712076, rs6892860, rs6867053, rs7737269, rs6864156, rs950447, rs2936196, rs7719347, rs1391649, rs1391650, rs1391651, rs1353749, rs10682149, rs5868153, rs1363882, rs2409626, rs2968018, rs954740, rs986067, rs6869400, and rs5010782.

13 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs7714708, rs1498602, rs4699934, rs1006431, rs1353747, rs1498608, rs1498609, rs2968010, rs2936202 and rs1391649.

14 (original). The method of claim 1, wherein the one or more polymorphic variations are detected in a region spanning positions 1,599 to 82,591 in SEQ ID NO: 4.

15 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs1478398, rs1478397, rs1160114, rs1160113, rs1382323, rs1160112, rs7709870, rs7710643, rs7730467, rs6579829, rs6579830, rs6579831, rs6896232, rs1351131, rs1038074, rs1478396, rs6880512, rs4958858, rs4958431, rs4958432, rs6898463, rs4958859, rs4130064, rs4130065, rs4133119, rs4958860, rs4958861, rs4437356, rs4958868, rs1478400, rs6889375, rs1600159, rs6875892, rs4608909, rs2345000, rs4516840, rs2054440, rs707141, rs707142, rs841236, rs707143, rs707144, rs6869405, rs707145, rs707146, rs707148, rs707150, rs5872184, rs3763015, rs2042235, rs3763013, rs2042236, rs1946234, rs1946235, rs1946236, rs8177402, rs8177403, rs8177404, rs8177405, rs8177406, rs8177407, rs8177408, rs8177409, rs6888961, rs8177410, rs8177411, rs8177412, rs8177413, rs870407, rs870406, rs6873202, rs8177414, rs8177415, rs3805435, rs8177416, rs3792799, rs3792798, rs3828599, rs8177417, rs3792797, rs8177418, rs8177419, rs8177420, rs8177421, rs4958872, rs3792796, rs8177422, rs8177423, rs4958434, rs8177424, rs8177425, rs8177426,

rs8177427, rs8177429, rs6889737, rs3792795, rs8177430, rs8177431, rs4958873, rs8177432, rs8177433, rs8177434, rs8177435, rs3763011, rs8177436, rs8177437, rs4958874, rs8177439, rs8177440, rs8177441, rs8177442, rs8177443, rs869975, rs869976, rs8177444, rs8177445, rs7721469, rs8177446, rs7704191, rs8177447, rs11548, rs2230303, rs7722386, rs8177448, rs8177449, rs2070593, rs8177450, rs8177451, rs8177452, rs8177453, rs8177454, rs3763010, rs8177455, rs8177456, rs736775, rs2277940, rs8177458, rs8177834, rs3924, rs2233312, rs2233311, rs2233310, rs2233309, rs4958875, rs2233308, rs2233307, rs2233306, rs2233305, rs2233304, rs2233303, rs2233302, rs2287719, rs2287720, rs7727034, rs7727250, rs7709800, rs3840312, rs2287721, rs6875293, rs3805434, rs2080982, rs2080983, rs2287722, rs2233301, rs2233300, rs4958876, rs2233299, rs2233298, rs2287723, rs2161359, rs7734456, rs4292439, rs4958878, rs6862024, rs3834819, rs2233297, rs2233296, rs2233295, rs2233294, rs7713028, rs7713223, rs7713567, rs888989, rs2233293, rs3749657, rs2233292, rs2112635, rs871269, rs3792794, rs6579837, rs3805433, rs5872186, rs2233291, rs2233290, rs2233289, rs4958435, rs4958880, rs1422673, rs2042234, rs3805432, rs3805431, rs2233288, rs2233287, rs3815720, rs3792792, rs3792791, rs2303018, rs3792790, rs4958436, rs2233286, rs2233285, rs7732451, rs2233284, rs1422674, rs3792789, rs4562032, rs6865077, rs1559126, rs3792788, rs1559127, rs3792786, rs6880110, rs6861227, rs3805430, rs1862364, rs4958881, rs3792785, rs6869605, rs6870205, rs4246047, rs4958882, rs3792784, rs3792783 and rs5872188.

16 (original). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions selected from the group consisting of rs1478398, rs1160114, rs1160113, rs1160112, rs4958858, rs4958431, rs6898463, rs4958859, rs4958860, rs4608909, rs707144, rs2042235, rs3763013, rs2042236, rs8177404, rs8177426, rs8177427, rs8177429, rs3792795, rs4958873, rs8177437, rs869975, rs8177447, rs11548,

rs2277940, rs8177834, rs2233311, rs2233302, rs7727034, rs7727250, rs3805434, rs7734456, rs7713028, rs7713223, rs888989, rs3792794, rs4958880, rs1422673, rs3805432 and rs4958436.

17 (original). The method of claim 1, wherein the one or more polymorphic variations are detected in a region spanning positions 231 to 86,539 in SEQ ID NO: 5.

18 (currently amended). The method of claim 1, wherein the one or more polymorphic variations are detected at one or more positions in linkage disequilibrium with one or more positions selected from the group consisting of rs7500979, rs2217332, rs8044804, rs2270835, rs2133783, rs247609, rs952440, rs881598, rs2291955, rs2518054, rs866038, rs1436425, rs173537, rs247611, rs166017, rs173538, rs193694, rs7205692, rs8048746, rs247618, rs183130, rs6499863, rs4783961, rs3816117, rs711752, rs708272, rs1864163, rs4369653, rs1864165, rs891141, rs891143, rs7205804, rs5885, rs1532625, rs1532624, rs289712, rs7499892, rs5883, rs289714, rs158480, rs289717, rs4344729, rs289718, rs289719, rs2033254, rs4784744, rs291044, rs8053613, rs5881, rs5880, rs7198026, rs5882, rs8045701, rs289741, rs1801706, rs289742, rs289743, rs289746, rs172337, rs289747, rs1566439, rs7205459, rs289749, rs289751, rs8059220, rs8058353, rs289735, rs289737, rs291042, rs1875236, rs821466, rs821465, rs4275846, rs289707, rs821463, rs289706, rs1167741, rs2052880, rs1167742, rs1183256, rs1651665, rs1651666, rs4784751, rs1651667, rs8052091, rs1684574, rs1684575, rs1672865, rs821470, rs1549669, rs291040 and rs289754 ~~in claim 3, 6, 9, 12 or 15~~.

19 (original). The method of claim 1, wherein detecting the presence or absence of the one or more polymorphic variations comprises:

hybridizing an oligonucleotide to the nucleic acid sample, wherein the oligonucleotide is complementary to a nucleotide sequence in the nucleic acid and hybridizes to a region adjacent to the polymorphic variation;

extending the oligonucleotide in the presence of one or more nucleotides, yielding extension products; and

detecting the presence or absence of a polymorphic variation in the extension products.

20 (original). The method of claim 1, wherein the subject is a human.

21-55 (cancelled).